

New Delhi for financial assistance (*vide* Sanction No.BT/PR1280/AGR/05/078/98) for studying the natural enemy

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## 26. ADDITIONS TO LARVAL HOST PLANTS OF BUTTERFLIES OF THE WESTERN GHATS, KERALA, SOUTHERN INDIA (RHOPALOCERA, LEPIDOPTERA): PART 1<sup>1</sup>

S. KALESH<sup>2</sup> AND SATYA KRISHNA PRAKASH<sup>3</sup>

<sup>1</sup>Accepted April 26, 2005

<sup>2</sup>BN 439, Greeshmam, Bapuji Nagar, Medical College P.O., Thiruvananthapuram 695 011, Kerala, India.

Email: kaleshs2002in@yahoo.com

<sup>3</sup>kp 9/665, Philip's Hill, Pothujanam Lane, Kumarapuram, Medical College P.O., Thiruvananthapuram 695 011, Kerala, India.

Email: imsatya26@yahoo.co.uk

### Introduction

Three pioneer naturalists, E. H. Aitken, J. Davidson and T. R. Bell started the work on larval host plants of butterflies of the Western Ghats, southern India. Since their early work there has been no extensive study on the host plants of the butterflies in this region (Kunte 2000, 2006). In his report Kunte (2006) reported 26 new host plants of Western Ghats butterflies, bringing the total number of host plants of early stages of Western Ghats butterflies close to 450. In the present note, we add another dozen plants to this growing list of host plants of butterflies of the Western Ghats. This also includes new families of host plants for a few butterflies, e.g. Zingiberaceae for *Gangara thyraxis*. Our records have been checked against the records of Bell (1910-1927), Wynter-Blyth (1957), Kunte (2000, 2006) and the most recent exhaustive compilation of larval host plants of Oriental Lepidoptera by Robinson *et al.* (2001). The list of floras from which plant identities and current scientific names have been confirmed is given below in references.

Our observations are from southern Western Ghats, in the districts of Thiruvananthapuram and Kollam, from the state of Kerala (approx. 8° 18'-9° 55' N and 76° 18'-77° 25' E). Some supporting observations are from neighbouring districts of Pathanamthitta, Kottayam and Alapuzha. Specific localities from where the caterpillars were collected were: 1) Thiruvananthapuram city suburbs, especially around Aakulam lake, 2) Government Medical College campus, Thiruvananthapuram, 3) Ponnudi-Kallar valley region (8° 45' N; 77° 6' E), Thiruvananthapuram district, 4) Chengannur in Alappuzha district, and 5) Thenmala region (8° 50' N; 77° 15' E), Kollam district. All observations were made between 2000 and 2005.

### Methods

Caterpillars collected were reared in plastic containers suitable for their size, e.g. for a 3 cm long caterpillar we used a 9 cm x 6 cm x 6 cm sized cage. Holes of size 1 mm x 1 mm per sq. cm were provided for sufficient aeration and maintenance of appropriate humidity. Food plants were changed, the cage was cleaned and fresh leaves were put every day. We included records only when butterflies were successfully reared from larvae, thus it excludes oviposition mistakes by these species.

### Family Nymphalidae

#### 1. *Melanitis leda* Linnaeus Common Evening Brown

*Rottboellia cochinchinensis* (Lour) W. Clayton, Poaceae, a tall gregarious herb in open spaces and roadsides, suburbs of Thiruvananthapuram, July and December 2004.

*Brachiaria mutica* Stapf, Poaceae, a gregarious tall grass at edges of water and in marshes, at Aakulam, Thiruvananthapuram city suburbs, January-March 2005.

#### 2. *Ypthima hnebneri* Kirby Common Fourring

*Axonopus compressus* (Swartz) Beauv., Poaceae, a small to medium sized herb at Aakulam, Thiruvananthapuram city suburbs, January-February 2005.

#### 3. *Orsotrioena medus* Fabricius The Nigger

*Brachiaria mutica* Stapf, Poaceae, a gregarious tall grass at edges of water and in marshes at Aakulam, Thiruvananthapuram city suburbs, January-February 2005.

## Family Lycaenidae

1. *Rathinda amor* Fabricius Monkey Puzzle

*Mangifera indica* Linn., Anacardiaceae, large tree in homesteads and *Meiogyne pannosa* (Dalz.) J. Sincl., Annonaceae, small tree, both in suburbs of Thiruvananthapuram city, 2000 and 2002 respectively.

2. *Zesius chrysomallus* Hübner Redspot

*Terminalia catapa* Linn., Combretaceae. A large tree; *Smilax zeylanica* Linn., Smilacaceae, a climber in coastal forests both plants at Aakulam. Lake side, Thiruvananthapuram. Red ants *Oecophylla* spp. were attending to the larvae while they fed on the leaves of these plants, and pupated inside ant shelters. Observed during September 2000 and November 2004 respectively.

## Family HesperIIDae

1. *Tagiades litigiosa* Möschler Water Snow Flat

*Dioscorea alata* Linn., Dioscoraceae, climber cultivated in homesteads observed at Chengannur in Alappuzha June-July 2003; Thenmala, Kollam February 2004.

2. *Tagiades gana* Mabille Suffused Flat

*Dioscorea alata* Linn., Dioscoraceae, climber cultivated in homesteads, Chengannur in Alappuzha June-July of 2003; Thiruvananthapuram city outskirts from 2000 to 2004, Kallar September 2003 and 2004.

3. *Spialia galba* Fabricius Indian Skipper

*Melochia corchorifolia* Linn., Sterculiaceae, a herb seen around habitations and disturbed places in suburbs of Thiruvananthapuram, July 2003.

4. *Halpe pornus* Mabille Moore's Ace

*Bambusa striata* Lodd. ex Lindl., Poaceae, large tree in gardens, Government Medical College campus Thiruvananthapuram, August-September 2004.

*Ochlandra scriptoria* (Dennst.) Fisch., Poaceae tall reeds growing in clumps seen along waterways and canals at Chengannur in Alappuzha, October 2002.

Both sexes were reared and detailed notes on their natural history will be published later.

5. *Sovia hyrtacus* de Nicéville Bicolor Ace

*Ochlandra travancorica* Benth., Poaceae, gregarious reeds seen near water, and deciduous and mixed forests Kallar, Thiruvananthapuram, December 2001 and December 2003. Two larvae obtained both in reeds in a riparian region.

6. *Iambrix salsala* Moore Chestnut Bob

*Setaria barbata* (Linn.) Kunth, Poaceae, small to medium sized herbs, suburbs Thiruvananthapuram, June-July of 2002 to, Aakulam lake at Thiruvananthapuram, October-December of 2000 to 2004; *Axonopus compressus* (Swartz.) Beauv., Poaceae, small to medium sized herbs, suburbs of Thiruvananthapuram, July 2004. *Brachiaria mutica* Stapf Poaceae, a gregarious tall growing grass at edges of water and in marshes, at Aakulam, Thiruvananthapuram city suburbs, January 2005.

7. *Psolos fuligo* Mabille Coon

*Marantha arundinacea* Linn., Maranthaceae, stemless gregarious herb widely cultivated, suburbs of Thiruvananthapuram, June-July and September-November of 2001 to 2004. Two distinct breeding seasons are noted corresponding to the rains and sometimes throughout the time the food plants are plenty; *Schmammianthus virgatus* Rolfe., Maranthaceae, a tall erect perennial herb in marshy and moist hilly regions at Thenmala in Kollam district and Kallar at Thiruvananthapuram January 2003 and 2004.

8. *Udaspes folus* Cramer Grass Demon

*Zingiber zerumbet* Sm., Zingiberaceae, tall herb in moist soil often found gregarious in hilly regions in suburbs of Thiruvananthapuram, November-December of 2001 to 2004.

9. *Notocrypta curvifascia* Felder & Felder Restricted Demon

*Zingiber zerumbet* Sm., Zingiberaceae, tall herb often found growing gregarious in moist soil in hilly regions in suburbs of Thiruvananthapuram, December 2004. Has been previously reported by Veenakumari *et al.* (1998) from Andaman and Nicobar Islands, new record for southern India.

10. *Gangara thyrsis* Fabricius Giant Redeye

*Zingiber officinale* Rosc., Zingiberaceae, medium sized perennial herb cultivated widely in suburbs of Thiruvananthapuram, November 2004. Palms (Arecaceae) are usual host plants; this is a new host plant family for this species.

11. *Matapa aria* Moore Common Red Eye

*Bambusa striata* Lodd. ex Lindl., Poaceae, large tree in gardens in suburbs of Thiruvananthapuram, May-June of 2001 to 2004.

*Ochlandra travancorica* Benth., Poaceae; gregarious reeds seen near water, and deciduous and mixed forests at Aakulam, Thiruvananthapuram May-June and November-January 2001-2004.

*Ochlandra scriptoria* (Dennst.) Fisch., Poaceae, tall reeds growing in clumps seen along waterways and canals at Chengannur in Alappuzha, October 2003.

12. ***Aeromachus pygmaeus* Fabricius** Pygmy Scrub Hopper

*Ischaemum indicum* (Houtt.) Merrill, Poaceae, a small herbaceous grass in open place, edges of roads and in lawns of gardens at Aakulam, Thiruvananthapuram during October 2004-February 2005.

13. ***Oriens goloides* (Moore)** Indian Dartlet

*Axonopus compressus* (Swartz) Beauv., Poaceae, a small to medium sized herb at Thiruvananthapuram city suburbs, July 2003 and July 2004.

*Oplismenus compositus* Beauv, Poaceae, small perennial grass in shady places in suburbs of Thiruvananthapuram city 2003 and at Thenmala, Kollam district, November 2004; *Setaria barbata* (Linn.) Kunth Poaceae, a small to medium sized herb, Thiruvananthapuram, June-July of 2003 to 2004.

14. ***Cupitha purreea* Moore** Wax Dart

*Quisqualis indica* Linn., Combretaceae, large climbers cultivated in gardens and seen near settlements at Kallar, Thiruvananthapuram, December 2004-January 2005.

15. ***Potanthus pseudomaesa* Moore** Pseudomaesa Dart

*Axonopus compressus* (Swartz) Beauv., Poaceae, a small to medium sized herb at Aakulam, Thiruvananthapuram city suburbs January 2005.

16. ***Telicota colou* Fabricius** Pale Palm Dart

*Bambusa striata* Lodd. ex Lindl., Poaceae, large tree in gardens, *Ochlandra travancorica* Benth., Poaceae, gregarious reeds seen near water, and deciduous and mixed forests. All observations at Thiruvananthapuram city suburbs June-July of 2002 to 2004.

17. ***Telicota ancilla* Herrich-Schäffer** Dark Palm Dart

*Ochlandra travancorica* (Benth.), Poaceae, medium sized trees seen near water, and deciduous and mixed forests.

*Bambusa striata* Lodd. ex Lindl., Poaceae, large tree in gardens of residential areas in Thiruvananthapuram June-July of 2002 to 2004.

*Bambusa wamin* Camus, Poaceae, a medium sized tree in gardens of residential areas in Thiruvananthapuram December 2004.

18. ***Baoris farii* Moore** Paintbrush Swift

*Ochlandra travancorica* Benth., Poaceae medium sized trees seen near a water canal in the suburbs of Thiruvananthapuram, June-July 2001.

*Ochlandra scriptoria* (Dennst) Fisch., Poaceae, small trees growing in clumps seen along waterways and canals at Chengannur in Alappuzha, December 2004.

*Bambusa striata* Lodd. ex Lindl., Poaceae, large tree in gardens, Aakulam, suburbs of Thiruvananthapuram, June-July of 2000 to 2004.

*Bambusa wamin* Camus, Poaceae, medium sized tree in gardens of residential areas in Thiruvananthapuram, December 2004.

19. ***Pelopidas conjuncta* Herrich-Schäffer** Conjoined Swift

*Rottboellia cochinchinensis* (Lour.) W. Clayton, Poaceae, a tall gregarious herb in open spaces and roadsides, suburbs of Thiruvananthapuram, January 2005.

20. ***Borbo ciunnara* Wallace** Rice Swift

*Setaria barbata* (Linn.) Kunth, Poaceae, medium sized herbs observed at Thiruvananthapuram, June-July of 2002 to 2004.

*Axonopus compressus* (Swartz) Beauv., Poaceae, a small to medium sized herb Thiruvananthapuram, July 2004.

*Rottboellia cochinchinensis* (Lour.) W. Clayton, Poaceae, a tall gregarious herb in open spaces and roadsides, suburbs of Thiruvananthapuram, July and December 2004.

*Brachiararia mutica* Stapf, Poaceae, a gregarious tall grass at edges of water and in marshes, at Aakulam, Thiruvananthapuram city suburbs, January 2003 to January 2005.

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27. NEW RECORDS OF TWO SPECIES OF SIMPLE ASCIDIANS –  
*MICROCOSMUS PUPA* (SAVIGNY, 1816) AND *MICROCOSMUS SQUAMIGER* HARTMEYER &  
 MICHAELSEN, 1928 – FROM INDIAN SEAS<sup>1</sup>

V.K. MEENAKSHI<sup>2,3</sup> AND S. SENTHAMARAI<sup>2</sup>

<sup>1</sup>Accepted February 13, 2006

<sup>2</sup>Department of Zoology, A.P.C. Mahalaxmi College for Women, Tuticorin 628 002, Tamil Nadu, India.

<sup>3</sup>Email: vkmeenakshi@yahoo.com

The occurrence of two simple ascidians of the genus *Microcosmus* – *Microcosmus pupa* (Savigny, 1816) and *Microcosmus squamiger* Hartmeyer & Michaelsen 1928 is reported for the first time from Tuticorin coast of India. A review of literature on ascidian systematics reveals that three species of the genus *Microcosmus*, namely *M. curvus* Tokioka, 1954; *M. exasperatus* Heller, 1878 and *M. helleri* Herdman, 1882 have been reported from the east coast of India (Oka 1915; Das 1945; Renganathan 1983, 1986; Krishnan *et al.* 1989). An analysis of the ascidian biofoulants at the pearl oyster farm of CMFRI (T) (8° 48' N; 78° 11' E) adds two more species. The specimens studied have been deposited in the ascidian collections of the museum of the Department of Zoology, V.O. Chidambaram College, Tuticorin, Regn. No. *Microcosmus pupa* (VOCMAS72); *Microcosmus squamiger* (VOCMAS16, AS163, AS185, AS190, AS194, AS207, AS223, AS1467).

**Taxonomy:** Class: Ascidiacea; Order: Pleurogona; Suborder: Stolidobranchia; Family: Pyuridae; Genus: *Microcosmus*

*Microcosmus pupa* (Savigny, 1816)

**Distribution:** New record: Tuticorin. This species has been previously reported from Red Sea (Savigny 1816; Michaelsen 1919), Australia (Kott 1985).

### Description

**External appearance:** Individuals upright, 6 cm long and 3 cm wide. Branchial siphon short, terminal. Atrial siphon lines halfway down the dorsal side directed laterally. They are fixed by their rounded posterior end. Test hard, thin, but tough, with wrinkles, especially in the anterior region. Live specimens dark pinkish orange to reddish brown. On preservation the colour fades to light orange. Siphonal spines 0.05 mm long and pointed. Base of the spine half the length of the spine. Tip of spine narrow, sharp and only slightly curved.

**Internal structure:** (Fig. 1) Body wall adheres closely to the test. There are 15 medium sized branchial tentacles alternating with rudimentary ones. The tentacles are not bushy. The primary branches are small and the secondary branches minute. The dorsal tubercle is a cushion with a U-shaped opening with both horns coiled 1½ times. Peritubercular area is U-shaped, filled by the dorsal tubercle. Dorsal lamina is long and smooth. There are nine broad overlapping branchial folds on the right, and eight on the left. Four stigmata in a mesh. The internal longitudinal vessels are arranged according to the formula.

E1(12) 2(18) 3(17) 4(24) 4(26) 4(30) 4(28) 3(26)  
 3(24)DL2(24) 4(28)4(30)4(26)3(24)3(20)2(18)2(12)0E